



19)

(11) Publication number:

01073750

Generated Document.

PATENT ABSTRACTS OF JAPAN(21) Application number: **62233108**(51) Int'l. Cl.: **H01L 23/34 H01L 23/40**(22) Application date: **16.09.87**

(30) Priority:

(43) Date of application **20.03.89**
publication:(84) Designated contracting
states:(71) Applicant: **NEC CORP**(72) Inventor: **MIYAMOTO TAKASHI**

(74) Representative:

**(54) SEMICONDUCTOR
DEVICE**

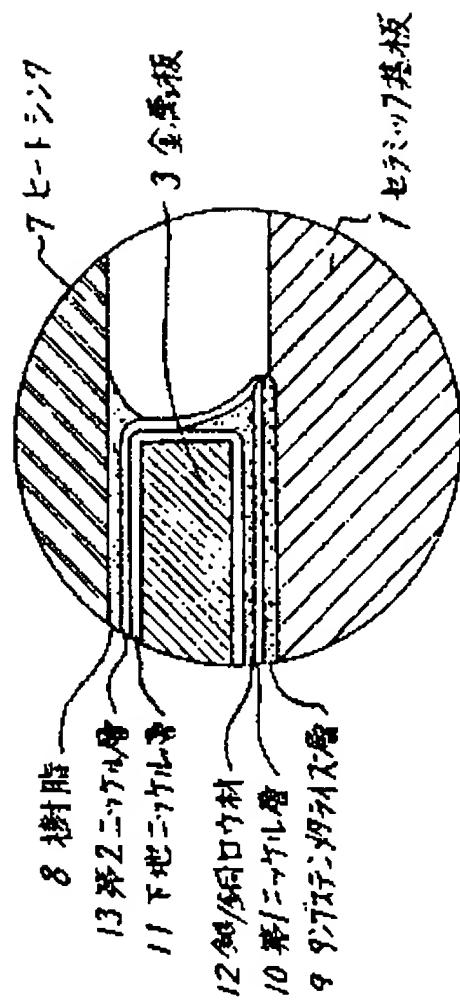
(57) Abstract:

PURPOSE: To improve a bonding strength by a method wherein a nickel layer is made to be employed as a metallic face to which a heat sink is to be bonded.

CONSTITUTION: A metallic plate 3 is so brazed as to cover a through-hole provided to the center of a ceramic substrate 1 of a semiconductor device provided with a heat sink, a semiconductor element is fixed to the recessed part of the rear of the plate 3, and a heat sink is bonded to the top surface of the plate 3. The metallic plate 3 provided with a primary nickel layer 11 on it is brazed to a first nickel layer 10, which is formed on a tungsten metallized layer 9 built on the substrate 1, using a silver/copper brazing material 12, and a second nickel layer 13 and a gold plated layer are formed through electroplating, then the gold plated layer is removed and a heat sink 7 is made to be directly bonded to the nickel layer 13 using a resin 8. In this

process, a adhesive seal or a film material is applied onto the part of the nickel layer 13 to which the heat sink 7 is made to be bonded and then a gold plating is performed, then a required part of the nickel layer 13 is made to be exposed. Or a gold plating is performed onto the whole face, and then gold plated on the required part is removed through etching.

COPYRIGHT: (C)1989,JPO&Japio





Delphion

LOG IN / LOG OUT ORDER FORM WORK FILES VIEW CART

BROWSE CODES IP LISTINGS PRIOR ART DOCUMENTS ADVANCED BOOLEAN SEARCH HELP

SEARCH BOOLEAN QUICK NUMBER

The Delphion
Integrated
View

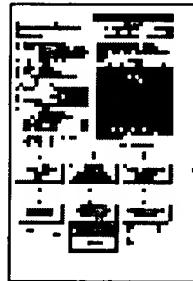
Other Views:
[INPADOC](#)

Title: **JP1073750A2: SEMICONDUCTOR DEVICE**
 ► Want to see a more descriptive title highlighting what's new about this invention?

Country: JP Japan
 Kind: A

Inventor(s): MIYAMOTO TAKASHI

[View Image](#)



1 page

Applicant/Assignee: **NEC CORP**
 Inquire Regarding Licensing

[News, Profiles, Stocks and More about this company](#)

Issued/Filed Dates: **March 20, 1989 / Sept. 16, 1987**

Application Number: **JP1987000233108**

IPC Class: **H01L 23/34; H01L 23/40;**

Priority Number(s): **Sept. 16, 1987 JP1987000233108**
Aug. 31, 1999 JP1999000245110

Abstract: **Purpose:** To improve a bonding strength by a method wherein a nickel layer is made to be employed as a metallic face to which a heat sink is to be bonded.

Constitution: A metallic plate 3 is so brazed as to cover a through-hole provided to the center of a ceramic substrate 1 of a semiconductor device provided with a heat sink, a semiconductor element is fixed to the recessed part of the rear of the plate 3, and a heat sink is bonded to the top surface of the plate 3. The metallic plate 3 provided with a primary nickel layer 11 on it is brazed to a first nickel layer 10, which is formed on a tungsten metallized layer 9 built on the substrate 1, using a silver/copper brazing material 12, and a second nickel layer 13 and a gold plated layer are formed through electroplating, then the gold plated layer is removed and a heat sink 7 is made to be directly bonded to the nickel layer 13 using a resin 8. In this process, a adhesive seal or a film material is applied onto the part of the nickel layer 13 to which the heat sink 7 is made to be bonded and then a gold plating is performed, then a required part of the nickel layer 13 is made to be exposed. Or a gold plating is performed onto the whole face, and then gold plated on the required part is removed through etching.

COPYRIGHT: (C)1989,JPO&Japio

► See a clear and precise summary of the whole patent, in understandable terms.

Family: [Show known family members](#)

Other Abstract Info: DERABS G2001-184498

Foreign References: No patents reference this one



[Nominate this
for the Gallery...](#)

[Subscribe](#) | [Privacy Policy](#) | [Terms & Conditions](#) | [FAQ](#) | [Site Map](#) | [Help](#) | [Contact Us](#)

© 1997 - 2002 Delphion Inc.